AF/2871

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of

NAKAJIMA

Serial No. 09/993,898

Filed: November 27, 2001

Title: LIQUID CRYSTAL DISPLAY DEVICE

Atty Dkt. 925-220
C# M#
TC/A.U.: 2871
Examiner: Duong, Tai
Date: August 9, 2004

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**
Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claim(s). ($330.00) $

☒ An appeal **BRIEF** is attached in triplicate in the pending appeal of the above-identified application ($ 330.00) $ 330.00

☐ Credit for fees paid in prior appeal without decision on merits -$ ( )

☐ A reply brief is attached in triplicate under Rule 193(b) **(no fee)**

☐ Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s) **($110.00/1 month**; $420.00/2 months; **$950.00/3 months**; $1480.00/4 months) $

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Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140.** A duplicate copy of this sheet is attached.

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By Atty: Joseph A. Rhoa, Reg. No. 37,515

Signature: _____

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of

NAKAJIMA — Atty. Ref.: 925-220

Serial No. 09/993,898 — TC/A.U.: 2871

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* *

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APPEAL BRIEF

Sir:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the last decision of the Examiner.

REAL PARTY IN INTEREST

The real party in interest is Sharp Kabushiki Kaisha, a corporation of the country of Japan.

RELATED APPEALS AND INTERFERENCES

The appellant, the undersigned, and the assignee are not aware of any related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

Claims 1-8 and 10-16 are pending. Claims 6-8 have been allowed. Moreover, the Examiner has indicated that claims 3, 5 and 10-16 contain allowable subject matter, and would be allowable if not for the Section 112, second paragraph, rejection.

Thus, currently rejected claims 1-5 and 10-16 are on appeal.

STATUS OF AMENDMENTS

No amendments have been filed since the date of the Final Rejection. However, the Response After Final filed May 13, 2004 has been considered by the Examiner as indicated in the Advisory Action dated May 28, 2004.

SUMMARY OF EXAMPLE EMBODIMENTS OF INVENTION

For purposes of example only and without limitation, certain example embodiments of this invention relate to an LCD (liquid crystal display apparatus) including an auxiliary capacitance.

For example, the Fig. 1-3 embodiment of the instant application includes an auxiliary capacitance electrode 8 which is located over a majority portion of the display area and overlaps a majority portion of a plurality of each of a plurality of pixel electrodes 10. An area of the auxiliary capacitance electrode 8 is removed in an area 14 (e.g., slit) between adjacent pixel electrodes 10. In other words, the auxiliary capacitance electrode 8 is not present in slit region 14 between adjacent pixel electrodes 10.

Surprisingly, it has been found that the removal of the auxiliary capacitance electrode 8 in an area 14 between adjacent pixel electrodes results in improved display

performance. In particular, as shown in Fig. 3, in a central portion 19 of the pixel electrode 10 an electric field is formed in a direction perpendicular to the pixel electrode 10 and to the opposed electrode 18 (the direction of the electric field is shown with broken lines in Fig. 3). Although distortion of the electric field is generated at an end 20 of the pixel electrode 10, in the first embodiment, the intensity of the transverse electric field exerted from the auxiliary capacitor electrode 8 to the pixel electrode 10 is much reduced as compared with the prior art because the auxiliary capacitor electrode 8 has been removed from the area corresponding to the gap between the pixel electrodes 10 (e.g., see paragraph 0053 of the instant specification). Consequently, liquid crystal orientation disorders can be reduced and/or prevented.

In certain embodiments such as in Figs. 6 and 8, the light-shielding film (38, 101) is distributed over a display screen such that it is located in a peripheral region of at least some pixel electrodes. In such embodiments, the light-shielding film need not overlap a majority portion of each pixel electrode.

ISSUES

1. Whether claims 1-3, 5 and 10-16 are unpatentable under 35 U.S.C. Section 112, second paragraph.

2. Whether claims 1, 2 and 4 are anticipated by Nakagawa under 35 U.S.C. Section 102(e).

GROUPING OF CLAIMS

For purposes of this appeal only, the claims are separated into the following patentably distinct groups.

A. Claims 1, 2 and 4 (art and Section 112 rejections).

B. Claim 3 (Section 112 rejection only).

C. Claims 5 and 10-16 (Section 112 rejection only).

Each of the aforesaid groups stands/falls on its own. For example, claims 1 and 3 stand/fall separately from one another.

With respect to the reasons for the separate groupings, the Examiner has indicated that claims 3, 5 and 10-16 contain allowable subject matter, whereas claims 1, 2 and 4 stand rejected over art. Thus, claims 3, 5 and 10-16 are patentably distinct from claims 1, 2 and 4 for at least this reason, as found by the Examiner. Moreover, the "light permeable material" aspect of claim 3 is not present in claim 1 and other claims, and claim 3 is patentably distinct from such claims for at least this reason.

ARGUMENT

The argument section of this brief is broken down into two separate portions. First, the argument with respect to the Section 112, second paragraph, rejection is presented; and second, the argument with respect to the Section 102(e) rejection is presented.

I. Section 112, Second Paragraph, Rejection

Claim 1 stands rejected under 35 U.S.C. Section 112, second paragraph. In particular, the final rejection contends that the word "majority" is indefinite. This Section

112 rejection is respectfully traversed, and should be reversed, for at least the following reasons.

It is well known that the ordinary meaning of "majority" is "*more than half.*" The meaning of "majority" is thus clear and definite. Consider, for example, the following dictionary definitions of the word "majority" (underlining added for emphasis):

> 1. Majority: The greater number or part; a number more than half of the total. *The American Heritage Dictionary of the English Language; Fourth Edition (2000).*
>
> 2. Majority: more than half. *Webster's Revised Unabridged Dictionary (1996, 1998 MICRA, Inc.).*
>
> 3. Majority: more than half the total number. *The New Lexicon Webster's Dictionary, Encyclopedic Edition (1989).*

The term "majority" is very clearly defined, both currently and historically in the English language. Its meaning (i.e., more than half) is clear, as can be seen from the above.

Moreover, the word "majority" is not a relative term as alleged in the Office Action. Because the term is not a "relative" term, it does not appear in Section 2173.05(b) of the M.P.E.P. Instead, the word "majority" clearly means more than half.

The caselaw clearly requires that this meaning (i.e., more than half) of "majority" controls. In particular, claim terms are presumed to have their ordinary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1459, 1366 (Fed. Cir. 2002). The ordinary meaning controls, unless the patentee demonstrated an intent to deviate from the ordinary meaning through words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. *Teleflex, Inc. v. Ficosa North Am. Corp.*, 299 F.3d 1313,

1327 (Fed. Cir. 2002). Here, there has been no deviation from the ordinary meaning. Thus, the ordinary meaning of "majority" is controlling and must be used. As explained above, the ordinary meaning of "majority" is "more than half" as recognized by many English language dictionaries. The word is clear and definite.

Thus, for example, claim 1 requires that the auxiliary capacitor electrode is formed over *more than half* (meaning of majority) of the display screen, and that the auxiliary capacitor electrode overlaps *more than half* of each of a plurality of pixel electrodes with at least one insulating film being provided therebetween. For example, Fig. 1 of the instant application illustrates that the auxiliary capacitor electrode is formed over the display area of the screen except for small areas surrounded by dotted lines 12 and 14 where it has been removed. Given that the word "majority" has a very well known ordinary meaning (i.e., more than half), claims 1-3, 5 and 10-16 are clear and definite. The Section 112 rejection should be reversed.

Additionally, claim 1 recites: "a region of the auxiliary capacitor electrode corresponding to a gap between adjacent pixel electrodes *having at least partially been removed.*" As correctly suggested by the Examiner on page 2 of the Office Action dated February 13, 2004, this phrase means that the auxiliary capacitor electrode is not present in the final product at least in part of an area where a gap is formed between adjacent pixel electrodes. For example, dotted lines 14 in Fig. 1 of the instant application illustrate that the auxiliary capacitor electrode is not present (has been removed) in the final product in an area corresponding to a gap between adjacent pixel electrodes 10 (see also reference numerals 10 and 14 in Fig. 2). As another example, dotted lines 22 in Fig. 4, dotted lines 44 in Fig. 5, and dotted lines 94 in Fig. 7 also indicate respective areas where

the auxiliary capacitor electrode is not present (has been removed) in the final product in an area corresponding to a gap between adjacent pixel electrodes. Thus, it can be seen that the phrase "having at least partially been removed" is clear and definite.

In a similar manner, the words/phrases "majority" and "having at least partially been removed" in other claims are also clear and definite. One of ordinary skill in the art would have easily recognized and understood the meanings of these claim limitations.

The Section 112, second paragraph, rejection should be reversed.

II. Art Rejection of Claim 1 (claims 2 and 4 stand/fall therewith)

It is axiomatic that in order for a reference to anticipate a claim, it must disclose, teach or suggest each and every feature recited in the claim. See, e.g., Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). The USPTO has the burden in this respect. Here, the cited art clearly fails to disclose or suggest each and every feature required by claim 1.

Claim 1 stands rejected under Section 102(e) as being allegedly anticipated by Nakagawa (US 6,525,788). This Section 102(e) rejection is incorrect, and should be reversed, for at least the following reasons.

Claim 1 requires "an auxiliary capacitor electrode formed over a majority portion of a display screen in such a manner that the auxiliary capacitor electrode is opposed to and overlaps a majority portion of each of a plurality of the pixel electrodes, with an insulation film interposed therebetween." As explained above, "majority" means "*more than half.*" Thus, claim 1 requires that the auxiliary capacitor electrode is formed over *more than half* of the display area, and that the auxiliary capacitor electrode overlaps

more than half of each of a plurality of pixel electrodes with at least one insulating film being provided therebetween.

Nakagawa fails to disclose or suggest the aforesaid aspects of claim 1. This is because Nakagawa's floating electrodes 11 overlap very little of the pixel electrodes 9, and are provided over only a very small portion of the display screen. Certainly, Nakagawa fails to disclose or suggest an auxiliary capacitor electrode(s) formed over *more than half* of (i.e., a majority of) the display screen, and also fails to disclose or suggest an auxiliary capacitor electrode(s) overlapping *more than half* (i.e., a majority) of each of a plurality of pixel electrodes with at least one insulating film being provided therebetween. Instead, Nakagawa teaches directly away from the invention of claim 1 since the floating electrode layer 11 of Nakagawa overlaps only very small parts of the pixel electrodes 9. Nakagawa is entirely unrelated to the invention of claim 1.

The Section 102(e) rejection of claim 1 should be reversed.

CONCLUSION

In conclusion it is believed that the application is in clear condition for allowance; therefore, early reversal of the Final Rejection and passage of the subject application to issue are earnestly solicited.

Respectfully submitted,

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APPENDIX

CLAIMS ON APPEAL

1. A liquid crystal display apparatus comprising two boards between which a liquid crystal layer is sandwiched, one of the boards including:

a plurality of scanning lines;

a plurality of signal lines disposed so as to intersect the scanning lines;

a plurality of switching elements and a plurality of pixel electrodes disposed in a matrix form in regions surrounded with the scanning lines and the signal lines; and

an auxiliary capacitor electrode formed over a majority portion of a display screen in such a manner that the auxiliary capacitor electrode is opposed to and overlaps a majority portion of each of a plurality of the pixel electrodes, with an insulation film interposed therebetween,

a region of the auxiliary capacitor electrode corresponding to a gap between adjacent pixel electrodes having at least partially been removed.

2. The liquid crystal display apparatus according to claim 1, wherein the auxiliary capacitor electrode is at least partially laid over the scanning lines, the signal lines, and/or the switching elements.

3. A liquid crystal display apparatus comprising two boards between which a liquid crystal layer is sandwiched, one of the boards including:

a plurality of scanning lines;

a plurality of signal lines disposed so as to intersect the scanning lines;

a plurality of switching elements and a plurality of pixel electrodes disposed in a matrix form in regions surrounded with the scanning lines and the signal lines;

an auxiliary capacitor electrode formed over a majority portion of a display screen in such a manner that the auxiliary capacitor electrode is opposed to a plurality of the pixel electrodes, with an insulation film interposed therebetween;

a region of the auxiliary capacitor electrode corresponding to a gap between adjacent pixel electrodes having at least partially been removed; and

wherein the auxiliary capacitor electrode is made of a light permeable material and disposed in at least one portion of an opening of each of pixels.

4. The liquid crystal display apparatus according to claim 1, wherein the pixel electrodes overlap the scanning lines and/or the signal lines.

5. A liquid crystal display apparatus comprising two boards between which a liquid crystal layer is sandwiched, one of the boards including:

a plurality of scanning lines;

a plurality of signal lines disposed so as to intersect the scanning lines;

a plurality of switching elements and a plurality of pixel electrodes disposed in a matrix form in regions surrounded with the scanning lines and the signal lines;

an auxiliary capacitor electrode formed over a majority portion of a display screen in such a manner that the auxiliary capacitor electrode is opposed to a plurality of the pixel electrodes, with an insulation film interposed therebetween;

a region of the auxiliary capacitor electrode corresponding to a gap between adjacent pixel electrodes having at least partially been removed; and

wherein a width of an area where the auxiliary capacitor electrode has been removed is larger than a width of the gap between the adjacent pixel electrodes.

6-8. (Allowed)

9. (Canceled)

10. A liquid crystal display apparatus comprising two boards between which a liquid crystal layer is sandwiched, one of the boards including:

a plurality of scanning lines;

a plurality of signal lines disposed so as to intersect the scanning lines;

a plurality of switching elements and a plurality of pixel electrodes disposed in a matrix form in regions surrounded with the scanning lines and the signal lines;

an auxiliary capacitor electrode formed over a majority portion of a display screen in such a manner that the auxiliary capacitor electrode is opposed to a plurality of the pixel electrodes with an insulation film interposed therebetween;

a light-shielding film formed in such a manner that the light-shielding film is opposed to a plurality of the pixel electrodes with the insulation film therebetween; and

regions of each of the light-shielding film and the auxiliary capacitor electrode corresponding to a gap between adjacent pixel electrodes having at least partially been removed.

11. The liquid crystal display apparatus according to claim 10, wherein the light-shielding film is at least partially laid over the scanning lines, the signal lines, and/or the switching elements.

12. The liquid crystal display apparatus according to claim 10, wherein the auxiliary capacitor electrode is at least partially laid over the scanning lines, the signal lines, and/or the switching elements.

13. The liquid crystal display apparatus according to claim 10, wherein the auxiliary capacitor electrode is made of a light permeable material and disposed in at least one portion of an opening of each of pixels.

14. The liquid crystal display apparatus according to claim 10, wherein the pixel electrodes overlap the scanning lines and/or the signal lines.

15. The liquid crystal display apparatus according to claim 10, wherein a width of an area where the auxiliary capacitor electrode has been removed is larger than a width of the gap between the adjacent pixel electrodes.

16. The liquid crystal display apparatus according to claim 10, wherein a width of an area where the light-shielding film has been removed is larger than a width of the gap between the adjacent pixel electrodes.